Early Journal Content on JSTOR, Free to Anyone in the World

This article is one of nearly 500,000 scholarly works digitized and made freely available to everyone in the world by JSTOR.

Known as the Early Journal Content, this set of works include research articles, news, letters, and other writings published in more than 200 of the oldest leading academic journals. The works date from the mid-seventeenth to the early twentieth centuries.

We encourage people to read and share the Early Journal Content openly and to tell others that this resource exists. People may post this content online or redistribute in any way for non-commercial purposes.

Read more about Early Journal Content at http://about.jstor.org/participate-jstor/individuals/early-journal-content.

JSTOR is a digital library of academic journals, books, and primary source objects. JSTOR helps people discover, use, and build upon a wide range of content through a powerful research and teaching platform, and preserves this content for future generations. JSTOR is part of ITHAKA, a not-for-profit organization that also includes Ithaka S+R and Portico. For more information about JSTOR, please contact support@jstor.org.

here. One might be inclined to question the value of this point of view for certain classes of students. Might not one regard the few "practical" problems always found in current texts as a sufficient hint of the practical side of the subject? Might not a good student obtain an even clearer insight into the utility of the subject, granted the time to cover such a book as this, if spherical trigonometry and its applications were included at the expense of problems in plane navigation and the refraction of light? Such queries must be answered by the individual teacher, as well as the more fundamental question as to whether the subject of trigonometry merits the time that a book of this sort will require to cover satisfactorily. In any case this text is urged upon the consideration of prospective teachers of the subject for its original and beautifully logical treatment in simple, clear style of a hackneyed but important course in elementary mathematics.

ALBERT A. BENNETT.

Loose-Leaf Outlines in Mathematics. By ROBERT R. GOFF. Boston, The Palmer Company. *Algebra,* 1920, 31 pages. Price $ .50. *Observational Geometry and Numerical Trigonometry,* 1922, 35 pages. Price $ .50.

The ideal method of conducting a mathematical class may depend upon the personality of the teacher even more than upon the content of the course or the preparation of the pupil. While lecture courses in which the students take notes as a basis for subsequent private study may prove entirely satisfactory for graduate courses in a university, there may be a question as to whether this is usually an ideal procedure in a subject like mathematics. Lectures are well adapted to advanced students if the subject matter is readily absorbed and merely an intelligent memory is required. The standard technique in undergraduate instruction in mathematics is undoubtedly to assign portions of a text for home study, designate certain problems to be completed outside of class, discuss and explain difficult points, and spend the remainder of the class period in testing the mastery that the students may have acquired of topics already assigned.

Other modes of attack are possible. In some places home work is reduced to a minimum. Laboratory methods are occasionally very successful in the hands of an enthusiastic teacher. A feature may be made of open discussion, or the subject may be taken up in a "reading course." The work may be handled in the character of a puzzle. A significant question to be asked is, how far does the student in fact utilize the explanations in the text. It is the reviewer's experience that the mind of the college freshman, at least, reacts far more vividly to a single illustrative example than to any discussion, long or short, of the principles involved. The college student is at first, if not eventually, inductive and general statements while readily memorized are applied only with difficulty until numerous examples have emphasized their significance. A question which the teacher must keep constantly in mind is as to just how far the student should be allowed to acquire mere dexterity accompanied by memorized rules (something that the otherwise poor student enjoys), and how far the processes of deduction in their more abstract aspects should be forced upon the youthful and not too receptive mind.

One can judge somewhat the popular taste by noting the wide sale of texts which are often little better than collections of well graded exercises and carefully detailed illustrative examples. Many books which are frankly exercises and nothing else fail in a wider appeal merely because they are not accompanied by sufficient material to be memorized. They are unpopular not because they have strained the material too thin, but because they give too little restful variety to the laboring student.

In high school work, independent thought on the part of the pupil must be even less stressed than in the first year at college. Rules and exercises must constitute the bulk of a course in mathematics. Must that be all? The loose-leaf system under present discussion appears to expect an answer in the affirmative. I will quote from the compiler's "Explanatory Note."

> "Some of the aims of these Outlines are to help the student:
>
> 1. Organize the material.
> 2. Separate essentials from non-essentials.
> 3. Emphasize fundamentals and methods.
> 4. Summarize related facts and processes.
>
> These Outlines can be used with any text book. Make the Outlines the basis of the recitation and use the text book for a reference and supply book.
>
> A topic is begun by a discussion of its nature and methods. Let the pupils do the work guided by the teacher. In the simpler operations, several particular examples from arithmetic should be carried through; then the generalized conclusion made in algebraic form and put on the pages of the Outlines or on an inserted page. "Chalk and talk" is good here. Then there should follow the application to exercises.
>
> Models should be made of every definition and process.
>
> Noticeable results of the use of these Outlines are:
>
> 1. They increase interest as work done with them is the pupil's own creation.
> 2. They make a reference book which the pupil knows how to use.
> 3. Their use develops habits of systematic effort.
> 4. They give a clear view of each topic as a whole."

Except for the idea of a loose-leaf method the material is handled in a standard conservative fashion and with a minimum of words. There is little beyond a set of definitional abstractions and a tabulation of type formulas and cases, with numerous blanks to be filled out by the pupil. There are few details which can be regarded as exercises in the narrow sense. Rather we have here an outline of the sort that when completed the professional tutor would call a syllabus. This makes the use of a separate source of problems essential but entirely replaces for the average pupil any text book discussion.

The sort of movement which this and numerous similar outlines evidence is of importance in the educational life of this country,—vastly more important than any single outline could be.

ALBERT A. BENNETT.

Plane Geometry: Experiment, Classification, Discovery, Application. By C. ADDISON WILLIS. Philadelphia, Pa., Blakiston's Son & Co., 1922. 16 mo. 301 pages. Price $1.32.

Preface: "This text represents the experience and developing ideals of a quarter of a century